

## **Abstract**

The various embodiments of the present invention generally provide a control system and a process for an exercise apparatus configurable into a combined treadmill and stepper mode. The apparatus may also be configured into stepper only and treadmill only modes. The apparatus generally includes a master control unit, a first sensor, in communication with the master control unit, which generates a first signal indicative of an effective tread speed for the apparatus, and a resistive element that includes at least one resistance level. Using the first signal, the resistance level, and empirical information, the amount of energy expended by a user of the apparatus may be calculated and the operation of the apparatus controlled. Various sensors, actuators and information, such as that obtained from various data structures, may be utilized in performing calculations and controlling the features, functions and operation of the apparatus.